



RADIO TEST REPORT

Applicant	:	SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address of Applicant	:	Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City, Guangdong, China
Manufacturer	:	SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address of Manufacturer	:	Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City, Guangdong, China
Equipment under Test	:	5.1CH Soundbar with Wireless Subwoofer
Model No.	:	M510WR, M510WR1, M510WR2, M510WR3, M510WR4, M510WR5
FCC ID	:	HBOM510WRSU
Trade Mark	:	TOSHIBA
Test Standard(s)	:	FCC Rules and Regulations Part 15 Subpart C, ANSI C63.10:2013
Report No.	:	DDT-RE25052319-1E11
Issue Date	:	2025/08/25
Issue By	:	Guangdong Dongdian Testing Service Co., Ltd. Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808

REPORT

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Test Report Declare

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Address of Manufacturer	:	Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City, Guangdong, China

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C,
ANSI C63.10:2013

We Declare:

The equipment described above is tested by Guangdong Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Guangdong Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

Report No.:	DDT-RE25052319-1E11		
Date of Receipt:	2025/06/13	Date of Test:	2025/06/13 - 2025/07/25

Created: Chen Ziqin	Reviewed: Zoe Peng	Approved: Damon Hu
		
2025/07/25	2025/08/25	2025/08/25

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Guangdong Dongdian Testing Service Co., Ltd.

Revision History

Version	Revision Content	Issue Date	Approved
V0	Initial issue	2025/08/25	Damon Hu

1. Summary of Test Results

No.	Test Parameter	Clause No.	Condition	Result
1	Duty Cycle	FCC Rules and Regulations Part 15 Subpart C	/	Pass
2	20dB Bandwidth and 99% Bandwidth	FCC Part 15: 15.215, ANSI C63.10:2013	/	Pass
3	Radiated Emission	FCC Part 15: 15.209, FCC Part 15: 15.249, ANSI C63.10:2013	/	Pass
4	Field Strength Of The Fundamental Signal	FCC Part 15: 15.209, FCC Part 15: 15.249, ANSI C63.10:2013	/	Pass
5	Power Line Conducted Emissions	FCC Part 15: 15.207, ANSI C63.10:2013	/	Pass
6	Antenna Requirement	FCC Part 15: 15.203	/	Pass

Note: N/A is an abbreviation for Not Applicable, and means this item is not applicable for this device or no need to test according to standard.

2. General Test Information

2.1. Description of EUT

EUT Name	: 5.1CH Soundbar with Wireless Subwoofer
Model Number	: M510WR, M510WR1, M510WR2, M510WR3, M510WR4, M510WR5
Difference of model number	: Above models are identical in schematic and structure, but the model number, appearance and trademark are different, therefore the test performed on the model M510WR
EUT Function Description	: Please reference user manual of this device
Power Supply	: DC 20V by an external adapter
Hardware Version	: M510WR-SMD
Software Version	: V1.0
Antenna Type	: PCB Antenna
Max Antenna Gain(dBi)	: 2.85

Radio Technology	: SRD
Operation frequency	: 5745 - 5848MHz
Modulation	: FSK

Channel information					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	5745	19	5781	37	5817
2	5747	20	5783	38	5819
3	5749	21	5785	39	5821
4	5751	22	5787	40	5823
5	5753	23	5789	41	5825
6	5755	24	5791	42	5827
7	5757	25	5793	43	5829
8	5759	26	5795	44	5831
9	5761	27	5797	45	5833
10	5763	28	5799	46	5835
11	5765	29	5801	47	5837
12	5767	30	5803	48	5839
13	5769	31	5805	49	5841
14	5771	32	5807	50	5843
15	5773	33	5809	51	5845
16	5775	34	5811	52	5848
17	5777	35	5813		
18	5779	36	5815		

Note: The above EUT information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications or User's Manual. The above Antenna information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

“☑” means to be chosen or applicable; “☐” means don't to be chosen or not applicable; This note

applies to entire report.

2.2. Accessories of EUT

Accessories	Manufacturer	Model number	Description
Remote control	/	/	/
Power cable	/	/	Length: 138cm, without core
HDMI cable	/	/	Length: 141cm, without core
Link cable of Surround	/	/	Length: 796cm, without core
Adapter	Shenzhen Fangxin	FX36E-200120C	Input: 100-240V~ 50/60Hz 0.8A Output: 20.0V = 1.2A (24.0W) Wire Length: 142cm, without core

2.3. Block diagram of EUT configuration for test



2.4. Decision of final test mode

According pre-test, the worst test modes were reported as below:

Test software: EMI_Tool_V2.3_Everestek Inc.exe

According pre-test, the worst test modes were reported as below, the pathloss of external cable:

0.5dB (According to the manufacturer's claims):

Tested mode, channel, information			
Mode	Setting Tx Power	Channel	Frequency (MHz)
FSK Tx mode	6	CH1	5745
	6	CH26	5795
	6	CH52	5848

2.5. Deviations of test standard

No deviation.

2.6. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25 °C
Humidity range:	40-75%
Pressure range:	86 kPa to106 kPa

Note: The specific temperature and humidity information of each test item refers to the temperature and humidity record in the corresponding test data.

2.7. Test laboratory

Guangdong Dongdian Testing Service Co., Ltd.

Add.: Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808.

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, R-20240, G-20118

2.8. Measurement uncertainty

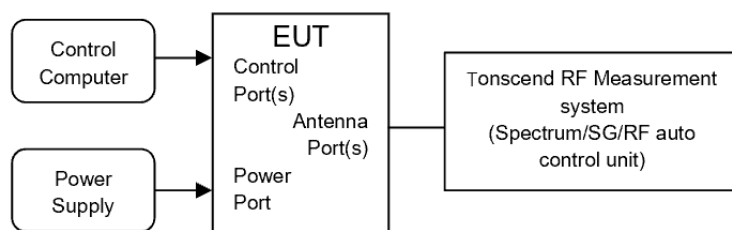
Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.38 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.38 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Frequencies Stability	6.7×10^{-8} (Antenna couple method) 5.5×10^{-8} (Conducted method)
Conducted spurious emissions	0.86 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.40 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$) 1.66 dB ($8 \text{ GHz} \leq f < 26.5 \text{ GHz}$)
Uncertainty for radio frequency (RBW < 20 kHz)	3×10^{-8}
Temperature	0.4 °C
Humidity	2 %
Uncertainty for Radiation Emission test (9 kHz – 30 MHz)	3.44 dB
Uncertainty for Radiation Emission test (30 MHz - 1 GHz)	4.70 dB (Antenna Polarize: V) 4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1 GHz - 40 GHz)	4.10 dB (1 - 6 GHz) 4.40 dB (6 GHz - 18 GHz) 3.54 dB (18 GHz - 26 GHz) 4.30 dB (26 GHz - 40 GHz)
Uncertainty for Power line conduction emission test	3.34dB (150KHz-30MHz) 3.72dB (9KHz-150KHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3. Equipment Used During Conductive Test

Equipment	Manufacturer	Model No.	Serial Number	Due Date
☐ RF Connected Test (RF Measurement System 3#)				
SIGNAL ANALYZER	R&S	FSV40	101407	2026/07/06
Wideband Radio Communication Tester	R&S	CMW500	117491	2026/03/28
EXG Analog Signal Generator	KEYSIGHT	N5173B	MY62153058	2026/07/06
MXG Vector Signal Generator	Agilent	N5182A	MY48180912	2026/03/28
RF Control Unit	Tonscend	JS0806-2	20C8060230	2026/03/28
TEMP&HUMI Programmable Chamber	ZHIXIANG	ZXGDJS-150L	ZX170110-A	2026/03/28
Test Software	Tonscend	JS1120-3	Ver.3.2.22	N/A

4. Duty Cycle

4.1. Block diagram of test setup



4.2. Limits

Just for Report and determining the average value of pulsed emissions.

4.3. Test procedure

(1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, The cable loss and attenuator loss have been put into spectrum analyzer as amplitude offset.

set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the middle hopping channel.

Resolution BW: 3 MHz.

Video BW: 3 MHz.

Span: Zero span.

Detector: Peak.

Trace Mode: Max Hold.

Sweep: Video Trigger

Sweep time: 100 ms

(2) When the trace is complete, measure the sending time of 1 burst and the duty cycle of 1 burst cycle.

(3) Calculate dwell time follow below formula:

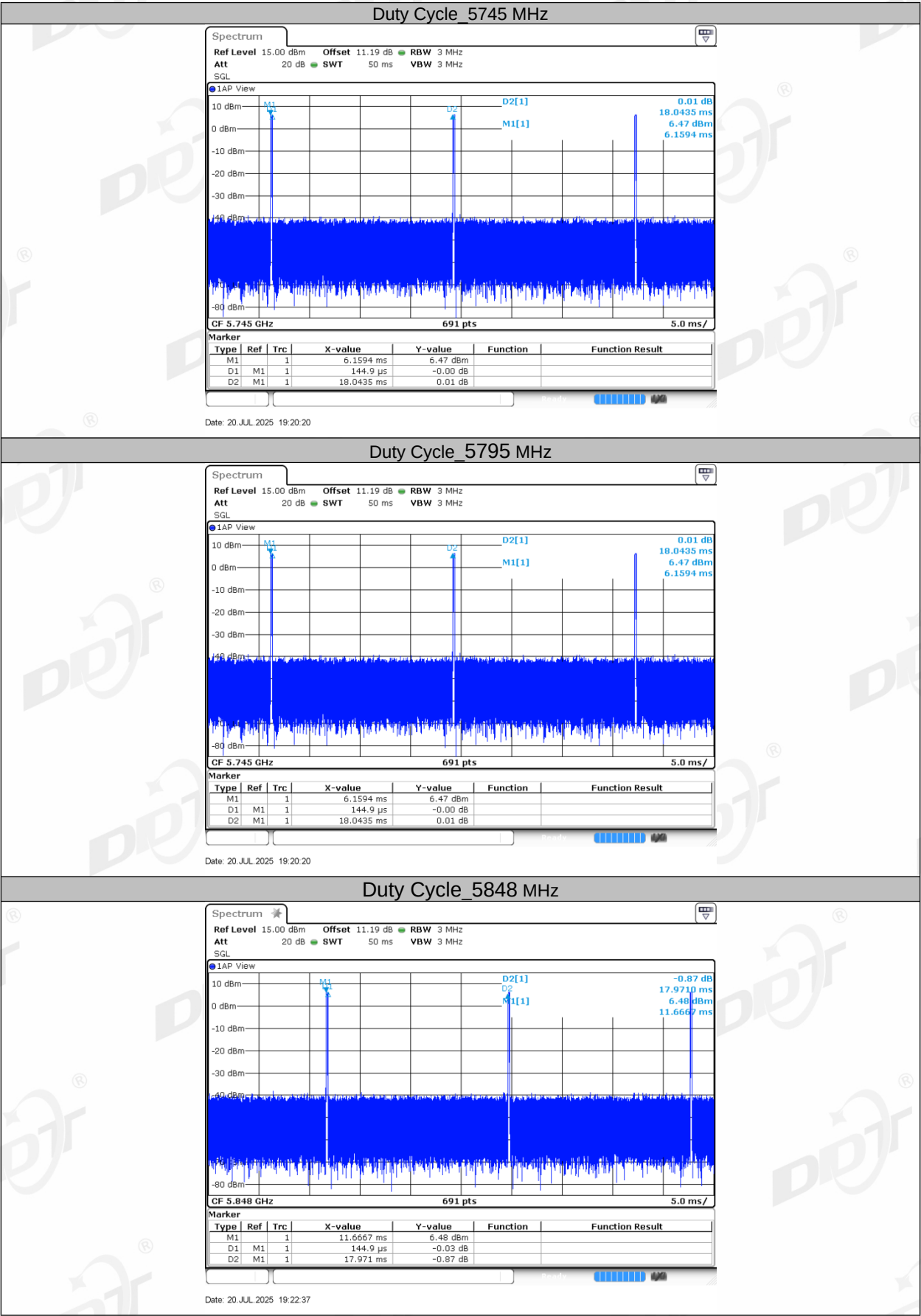
Duty cycle= Pulse's on time / Burst cycle

4.4. Test result

Test Engineer:	Zeng Zhongyao	Test Site:	RF Measurement System 3#
Ambient Condition:	23.5 °C, 55%RH	Test Date:	2025/6/13 - 2025/7/25
Test Power Supply:	AC 230V	Sample Number:	S25052319-007

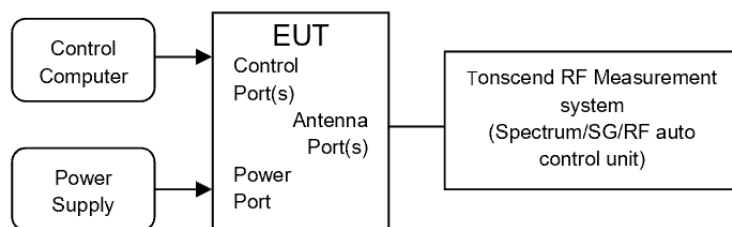
Mode	Freq (MHz)	Antenna	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor [dB]
FSK	5745	Ant1	0.14	18.04	0.78	-42.20
	5795	Ant1	0.14	18.04	0.78	-42.20
	5848	Ant1	0.14	17.97	0.78	-42.16

4.5. Test graphs



5. 20 dB Bandwidth

5.1. Block diagram of test setup



5.2. Limits

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

5.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Set the spectrum analyzer as follows:

RBW:	1% to 5% of the OBW
VBW:	approximately three times RBW
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

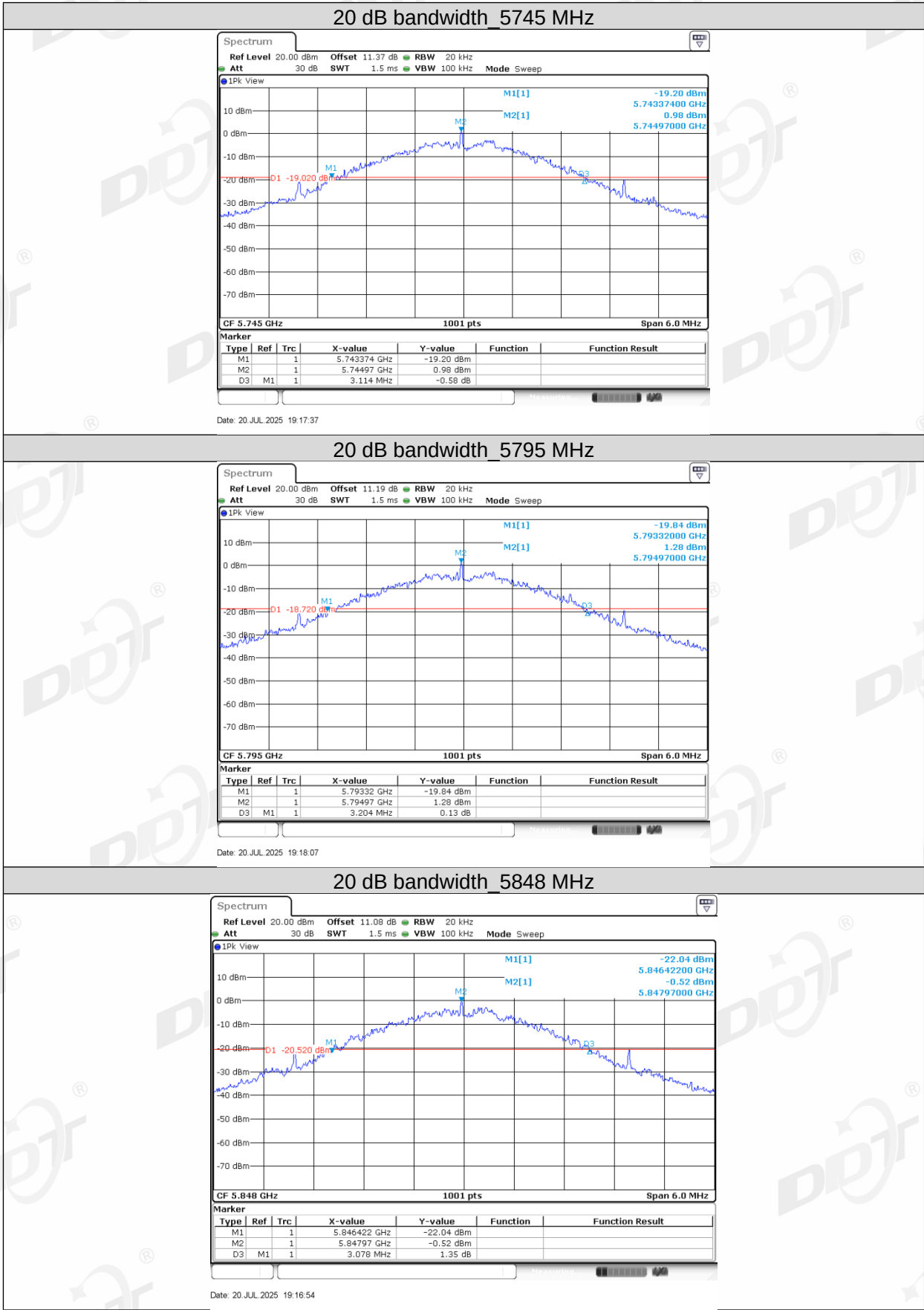
(3) Allow the trace to stabilize, measure the 20 dB bandwidth of signal.

5.4. Test result

Test Engineer:	Zeng Zhongyao	Test Site:	RF Measurement System 3#
Ambient Condition:	23.5 °C, 55%RH	Test Date:	2025/6/13 - 2025/7/25
Test Power Supply:	AC 230V	Sample Number:	S25052319-007

Mode	Freq (MHz)	20 dB bandwidth Result (MHz)	Limit (MHz)	Verdict
FSK	5745	3.11	/	Pass
	5795	3.20	/	Pass
	5848	3.08	/	Pass

5.5. Test graphs



6. Antenna Requirements

6.1. Limit

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

6.2. Result

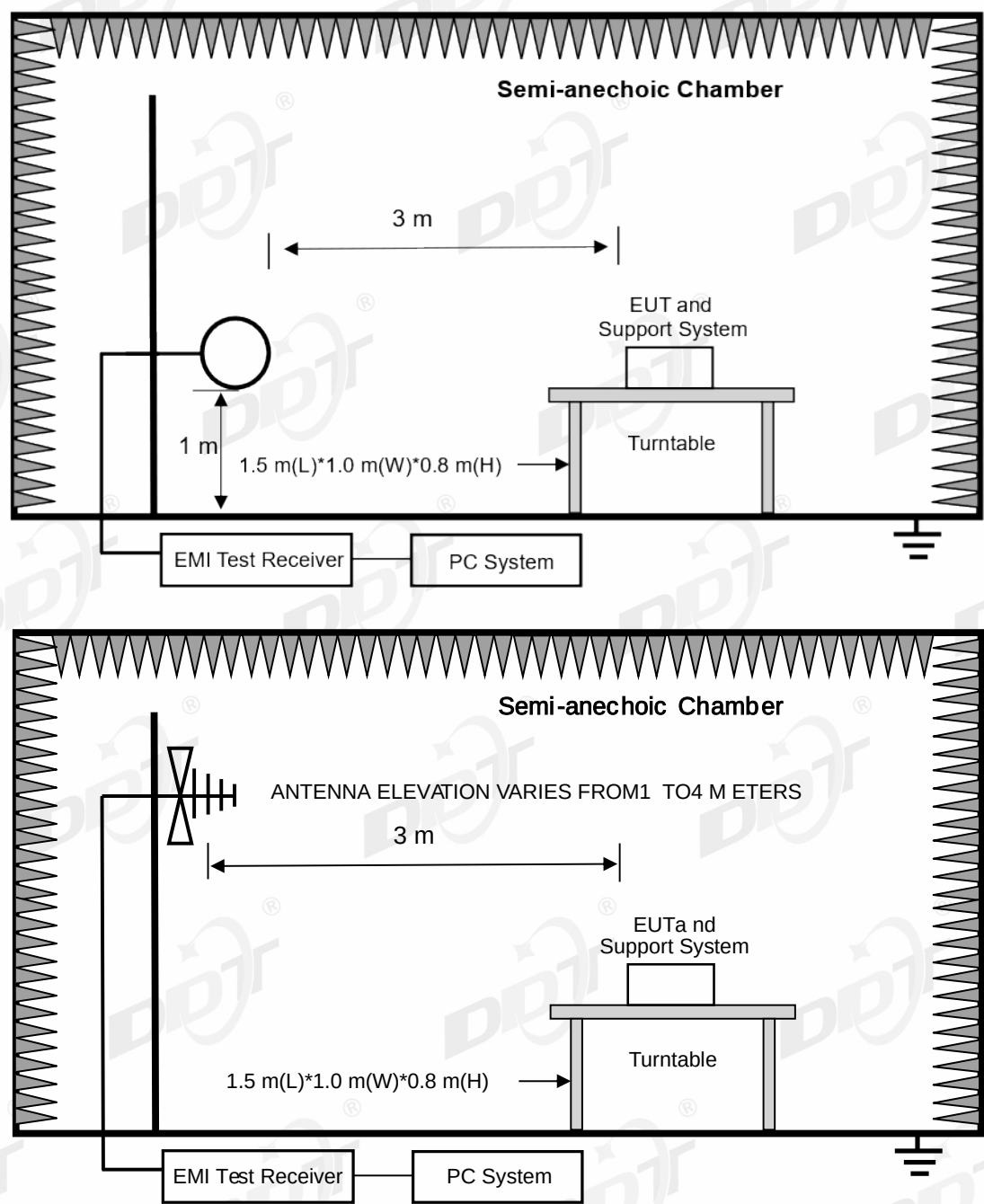
The antenna used for this product as Antenna information described in section 2.1 of the report, and there is no other antenna than that furnished by the responsible party shall be used with the device.

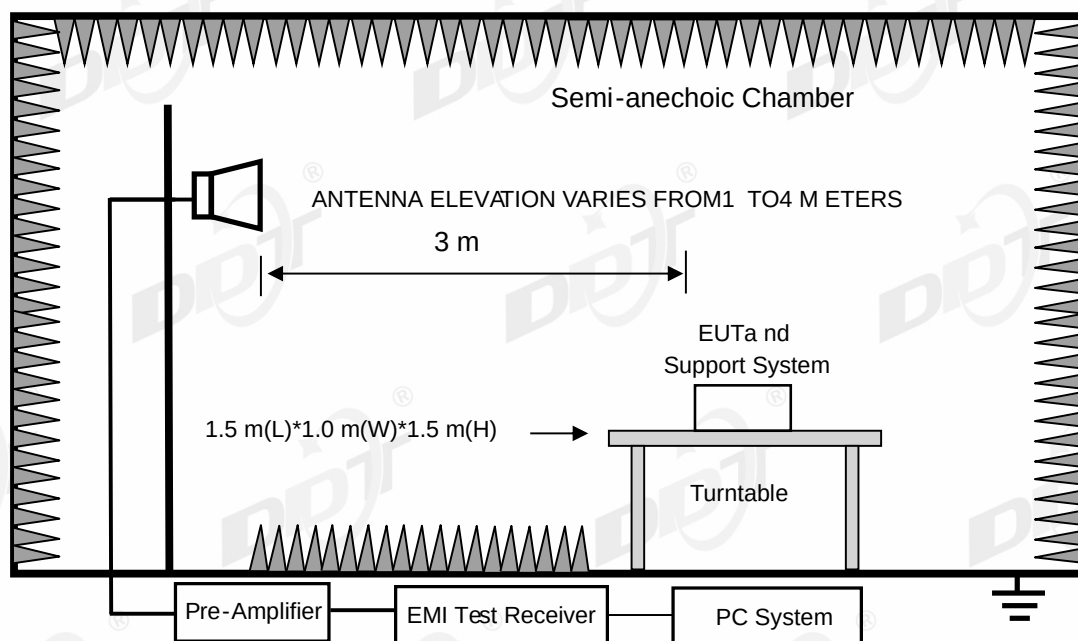
7. Radiated Emission

7.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal Due To
Micro-Tronics filters	REBES	BRM50702	DDT-ZC03242	/
RF Cable	N/A	W24.02 HL-562	DDT-ZC04022	2026/03/28
RF cable	Yuhu Technology	JCTB810-NJ-NJ-9M	DDT-ZC02538	2026/03/28
RF cable	Zhongke Junchuang	JCT26S-NJ-NJ-1.5M	DDT-ZC02762	2026/03/28
RF cable	Yuhu Technology	ZT26S-SMAJ-SMAJ-1M	DDT-ZC02037	2026/03/28
RF Cable	N/A	W13.02 AP1-X2	DDT-ZC04023	2026/03/28
Pre-amplifier	COM-POWER	PAM-840A	DDT-ZC01693	2026/03/28
Pre-amplifier	COM-POWER	PAM-118A	DDT-ZC01293	2025/08/25
High pass filter	Micro-Tronics	HPM50102	DDT-ZC00561	2026/03/28
EMI TEST RECEIVER	R&S	ESU26	DDT-ZC01909	2026/03/28
High pass filter	Micro-Tronics	HPM50108	DDT-ZC00560	2026/03/28
High Pass filter	Xi'an Xingbo	XBLBQ-GTA67	DDT-ZC02179	2026/03/28
Micro-Tronics filters	REBES	BRM50716	DDT-ZC03240	/
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	DDT-ZC00506	2027/04/01
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	DDT-ZC02050	2025/07/11
Hochgewinn-Hornantenne	SCHWARZBECK	BBHA 9120 D	DDT-ZC02129	2025/09/18
Active Loop Antenna	Schwarzbeck	FMZB1519	DDT-ZC00524	2025/09/11
PSA Series Spectrum Analyzer	Agilent	E4447A	DDT-ZC00517	2026/03/28

7.2. Block diagram of test setup





7.3. Limits

(1) FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.1772&4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.6
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

(2) FCC 15.209 Limit.

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		uV/m	dBuV/m
0.009 ~ 0.490	300	2400/F(kHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(kHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dBuV/m (Peak) 54.0 dBuV/m (Average)	

Note:

(1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9 - 90 kHz, 110 - 490 kHz and above 1000 MHz, radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30 MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$\text{Limit}_{3m}(\text{dBuV/m}) = \text{Limit}_{30m}(\text{dBuV/m}) + 40\text{Log}(30m/3m)$$

(3) Limit for this EUT

The emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20 dB below the fundamental emissions or comply with 15.209 limit.

7.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

7.5. Test procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.

(2) Test antenna was located 3m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used	Test antenna distance
30MHz-1GHz	Trilog Broadband Antenna	3m

The Trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1m to 4m(Except loop antenna, it's fixed 1m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Change power supply range from 85% to 115% of the rated supply voltage

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

(4) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10 2013 on Radiated Emission test.

(5) The emissions from 9kHz to 1GHz were measured based on CISPR QP detector except for the frequency bands 9-90kHz, 110-490kHz, for emissions from 9kHz-90kHz,110kHz-490kHz and above 1GHz were measured based on average detector, for emissions above 1GHz, peak emissions also be measured and need comply with Peak limit.

(6) The emissions from 9kHz to 1GHz, QP or average values were measured with EMI receiver with below RBW.

Frequency band	RBW
30MHz-1GHz	120kHz

(7) X axis, Y axis, Z axis are tested, and worse setup X axis is reported

7.6. Test result

PASS. (See below detailed test result)

7.7. Test data

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-07-14

Tested By:

Nan Zhong

EUT:

Rear Surround Speaker

Model Number:

M510WR

Test Mode:

TX SRD 5745MHz Mode

Power Supply:

AC 230V/50Hz

Condition:

Temp:22.1°C;Humi:44.4%

Test Site:

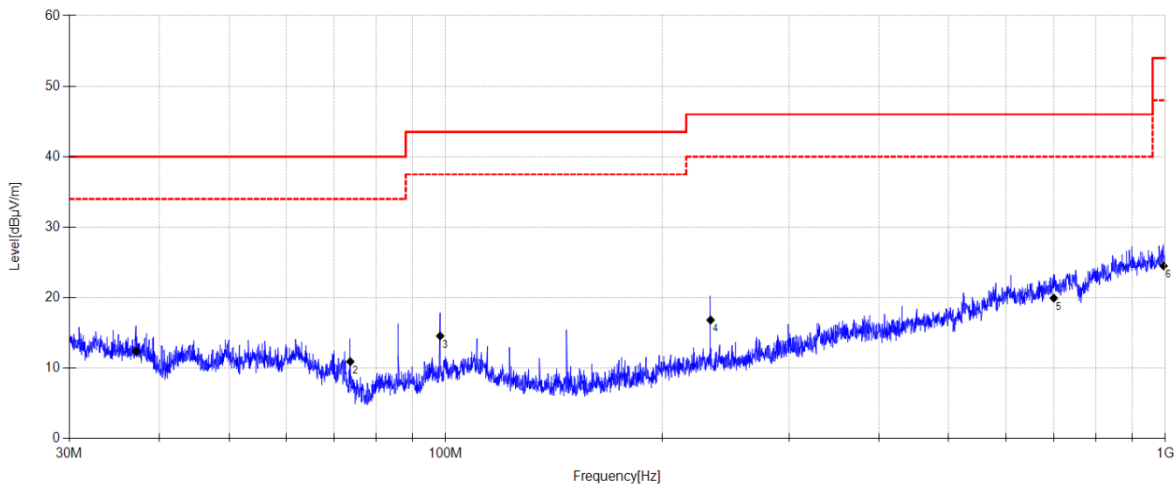
DDT 3# Chamber

File Path:

d:\ts\2025 report date\Q25052319-2E\FCC BELOW1G\20250714-214214_H

Memo:

Sample Number:S25052319-001



Final Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable Loss [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	37.127	28	11.66	3.80	12.36	40.00	27.64	QP	Horizontal
2	73.707	28.98	8.99	4.05	10.92	40.00	29.08	QP	Horizontal
3	98.256	30.33	11.12	4.21	14.56	43.50	28.94	QP	Horizontal
4	233.417	31.65	11.53	4.91	16.82	46.00	29.18	QP	Horizontal
5	699.845	25.14	19.60	6.69	19.93	46.00	26.07	QP	Horizontal
6	994.406	24.64	22.54	7.45	24.50	54.00	29.50	QP	Horizontal

Note:

1. Result Level = Reading + Cable loss + Antenna Factor + AMP

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-07-14

Tested By:

Nan Zhong

EUT:

Rear Surround Speaker

Model Number:

M510WR

Test Mode:

TX SRD 5745MHz Mode

Power Supply:

AC 230V/50Hz

Condition:

Temp:22.1°C;Humi:44.4%

Test Site:

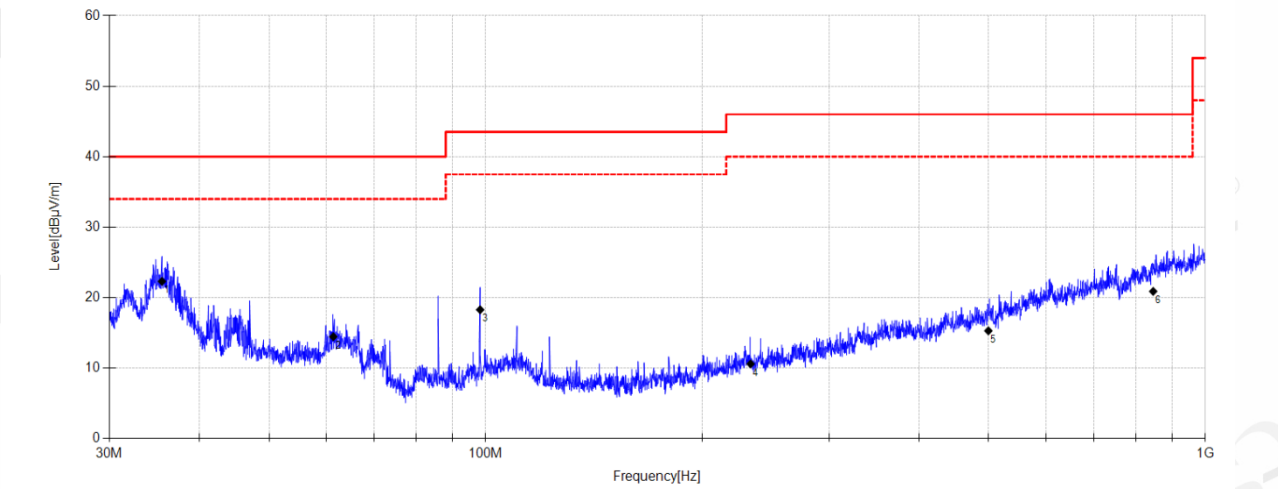
DDT 3# Chamber

File Path:

d:\ts\2025 report date\Q25052319-2E\FCC BELOW1G\20250714-214304_V

Memo:

Sample Number:S25052319-001



Final Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable Loss [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	35.498	37.87	11.75	3.79	22.31	40.00	17.69	QP	Vertical
2	61.424	29.02	12.57	3.97	14.46	40.00	25.54	QP	Vertical
3	98.256	34.05	11.12	4.21	18.28	43.50	25.22	QP	Vertical
4	233.417	25.42	11.53	4.91	10.59	46.00	35.41	QP	Vertical
5	499.494	23.74	17.05	6.00	15.29	46.00	30.71	QP	Vertical
6	846.302	23.44	21.20	7.07	20.89	46.00	25.11	QP	Vertical

Note:

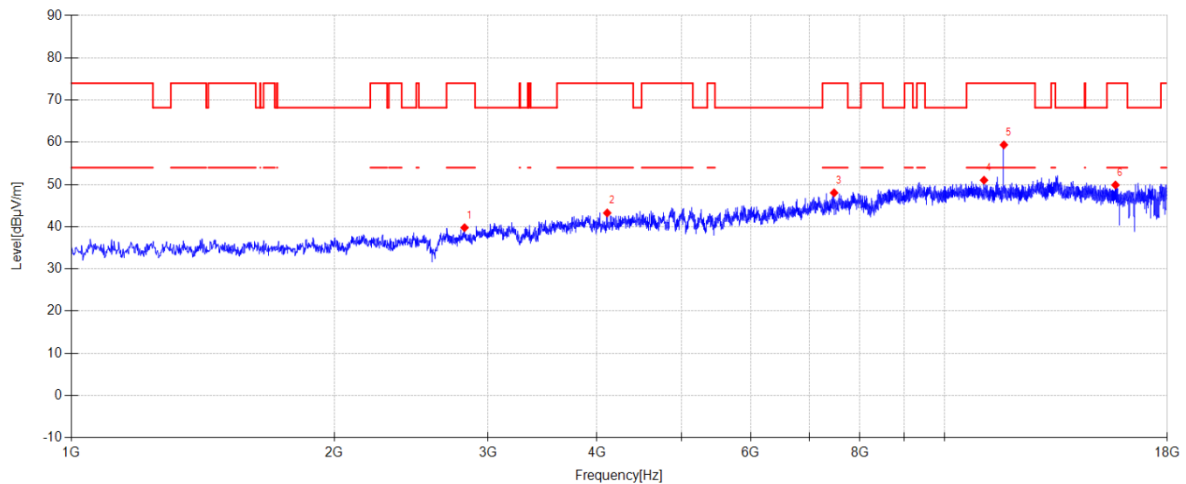
1. Result Level = Reading + Cable loss + Antenna Factor + AMP

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-07-14 **Tested By:** Nan Zhong
EUT: Rear Surround Speaker **Model Number:** M510WR
Test Mode: TX SRD 5848MHz Mode **Power Supply:** AC 230V/50Hz
Condition: Temp:22.1°C;Humi:44.4% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2025 report date\Q25052319-2\FCC ABOVE1G 5.8G\127
Memo: Sample Number:S25052319-001

**Suspected Data List**

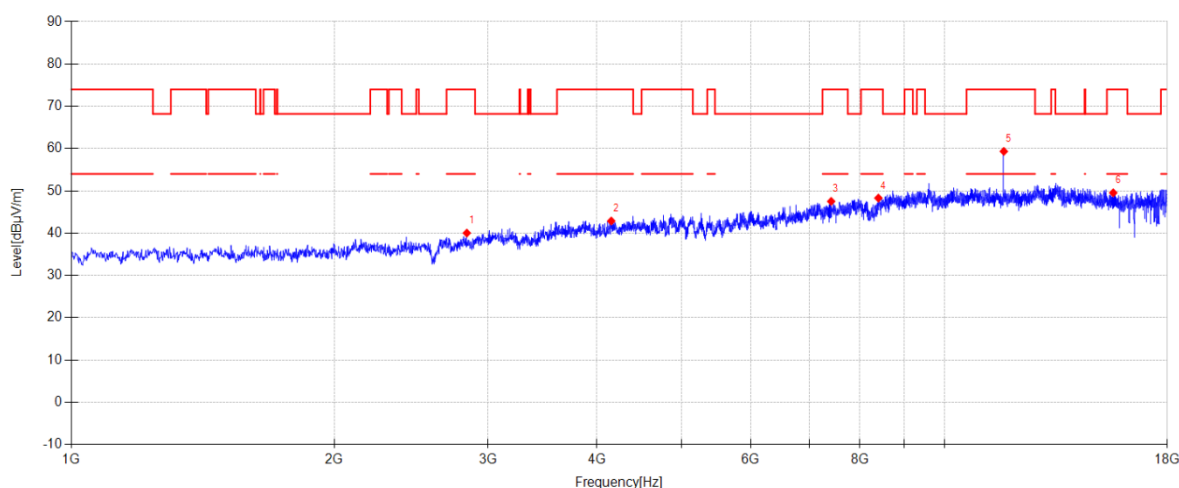
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2820.700	46.61	27.57	4.81	-39.21	39.78	74.00	34.22	PK	Horizontal
2	4109.300	46.37	31.12	5.44	-39.67	43.26	74.00	30.74	PK	Horizontal
3	7475.300	44.52	36.55	7.53	-40.57	48.03	74.00	25.97	PK	Horizontal
4	11099.700	42.35	39.30	8.48	-39.10	51.03	74.00	22.97	PK	Horizontal
5	11696.400	51.25	39.00	8.84	-39.70	59.39	74.00	14.61	PK	Horizontal
6	15698.200	40.69	38.50	10.10	-39.40	49.89	74.00	24.11	PK	Horizontal
7	11696.400	/	/	/	/	17.23	54.00	36.77	AV	Horizontal

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-07-14 **Tested By:** Nan Zhong
EUT: Rear Surround Speaker **Model Number:** M510WR
Test Mode: TX SRD 5848MHz Mode **Power Supply:** AC 230V/50Hz
Condition: Temp:22.1°C;Humi:44.4% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2025 report date\Q25052319-2E\FCC ABOVE1G 5.8G\128
Memo: Sample Number:S25052319-001

**Suspected Data List**

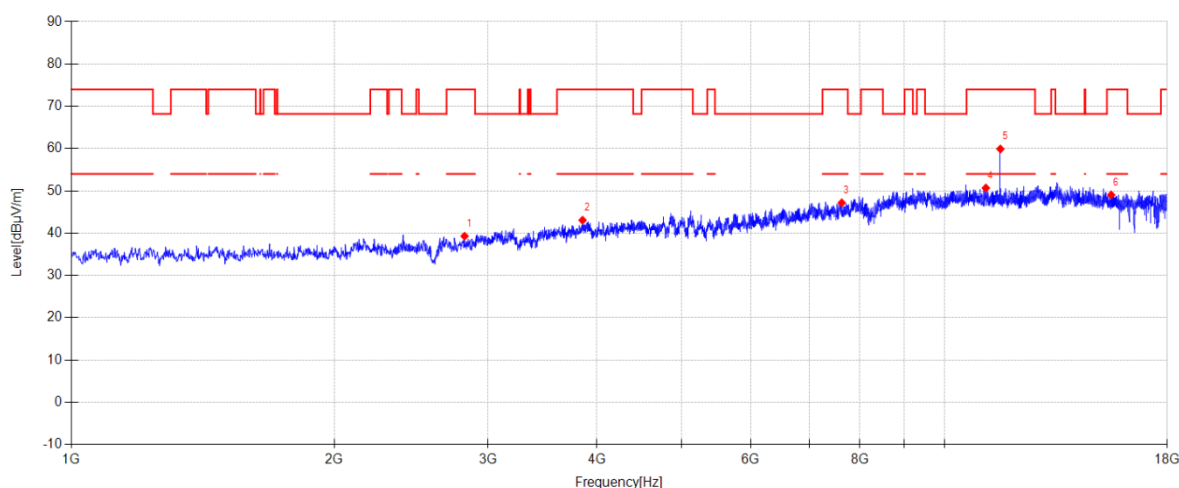
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2837.700	46.75	27.70	4.82	-39.24	40.03	74.00	33.97	PK	Vertical
2	4153.500	45.85	31.20	5.49	-39.67	42.87	74.00	31.13	PK	Vertical
3	7417.500	43.97	36.67	7.50	-40.62	47.52	74.00	26.48	PK	Vertical
4	8401.800	42.41	37.50	7.97	-39.58	48.30	74.00	25.70	PK	Vertical
5	11694.700	51.19	39.00	8.84	-39.69	59.34	74.00	14.66	PK	Vertical
6	15608.100	40.29	38.59	10.06	-39.40	49.54	74.00	24.46	PK	Vertical
7	11694.700	/	/	/	/	17.18	54.00	36.82	AV	Vertical

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-07-14 **Tested By:** Nan Zhong
EUT: Rear Surround Speaker **Model Number:** M510WR
Test Mode: TX SRD 5795MHz Mode **Power Supply:** AC 230V/50Hz
Condition: Temp:22.1°C;Humi:44.4% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2025 report date\Q25052319-2E\FCC ABOVE1G 5.8G\129
Memo: Sample Number:S25052319-001

**Suspected Data List**

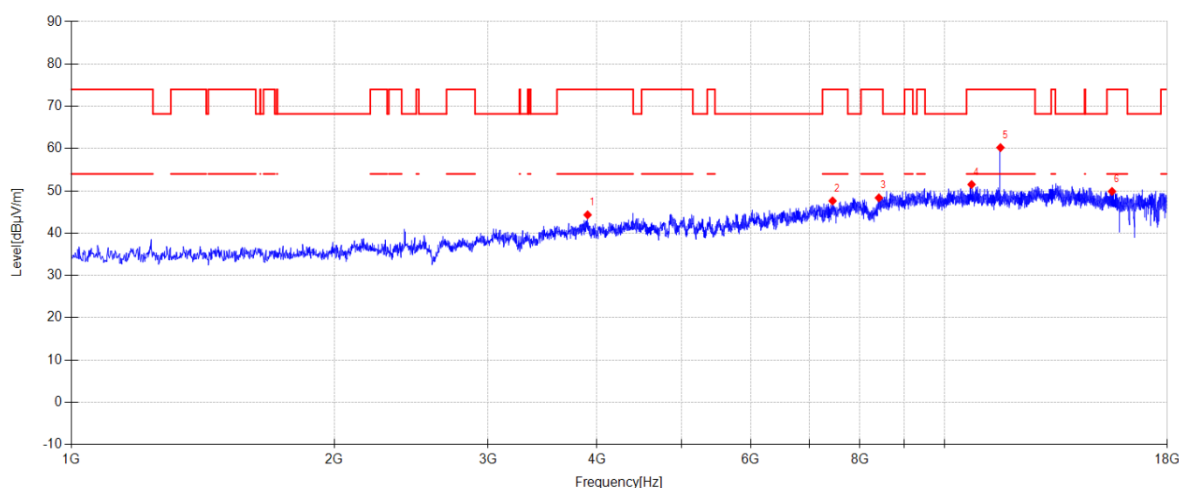
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2820.700	46.12	27.57	4.81	-39.21	39.29	74.00	34.71	PK	Horizontal
2	3850.900	46.53	30.91	5.26	-39.64	43.06	74.00	30.94	PK	Horizontal
3	7626.600	43.44	36.55	7.63	-40.44	47.18	74.00	26.82	PK	Horizontal
4	11154.100	42.07	39.25	8.51	-39.15	50.68	74.00	23.32	PK	Horizontal
5	11589.300	51.71	39.02	8.77	-39.59	59.91	74.00	14.09	PK	Horizontal
6	15523.100	39.67	38.75	10.03	-39.40	49.05	74.00	24.95	PK	Horizontal
7	11589.300	/	/	/	/	17.71	54.00	36.29	AV	Horizontal

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-07-14 **Tested By:** Nan Zhong
EUT: Rear Surround Speaker **Model Number:** M510WR
Test Mode: TX SRD 5795MHz Mode **Power Supply:** AC 230V/50Hz
Condition: Temp:22.1°C;Humi:44.4% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2025 report date\Q25052319-2E\FCC ABOVE1G 5.8G\130
Memo: Sample Number:S25052319-001

**Suspected Data List**

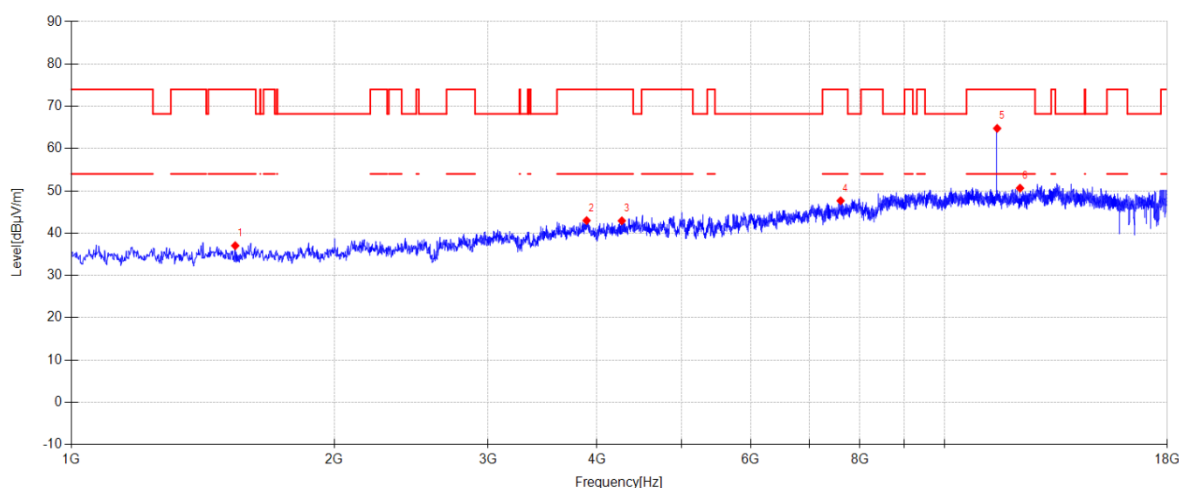
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	3901.900	47.51	31.20	5.28	-39.66	44.33	74.00	29.67	PK	Vertical
2	7444.700	44.11	36.61	7.51	-40.60	47.63	74.00	26.37	PK	Vertical
3	8412.000	42.43	37.50	7.98	-39.56	48.35	74.00	25.65	PK	Vertical
4	10741.000	42.93	39.40	8.34	-39.16	51.51	74.00	22.49	PK	Vertical
5	11591.000	52.03	39.02	8.77	-39.59	60.23	74.00	13.77	PK	Vertical
6	15557.100	40.54	38.69	10.04	-39.40	49.87	74.00	24.13	PK	Vertical
7	11591.000	/	/	/	/	18.03	54.00	35.97	AV	Vertical

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-07-14 **Tested By:** Nan Zhong
EUT: Rear Surround Speaker **Model Number:** M510WR
Test Mode: TX SRD 5745MHz Mode **Power Supply:** AC 230V/50Hz
Condition: Temp:22.1°C;Humi:44.4% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2025 report date\Q25052319-2E\FCC ABOVE1G 5.8G\131
Memo: Sample Number:S25052319-001

**Suspected Data List**

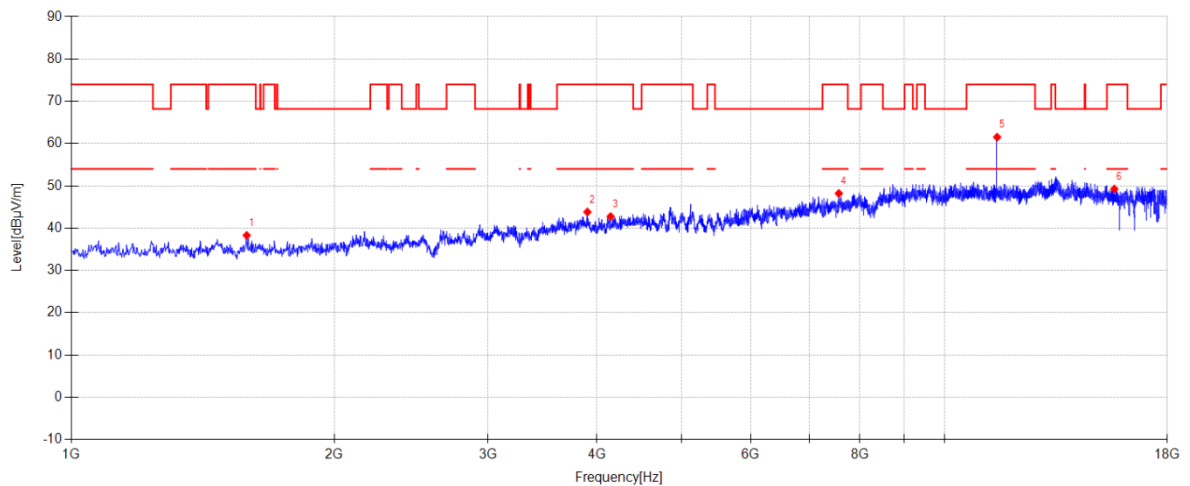
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	1540.600	46.23	24.93	3.40	-37.52	37.04	74.00	36.96	PK	Horizontal
2	3891.700	46.20	31.15	5.28	-39.65	42.98	74.00	31.02	PK	Horizontal
3	4270.800	45.48	31.48	5.63	-39.66	42.93	74.00	31.07	PK	Horizontal
4	7604.500	43.99	36.51	7.62	-40.46	47.66	74.00	26.34	PK	Horizontal
5	11490.700	56.35	39.21	8.71	-39.49	64.78	74.00	9.22	PK	Horizontal
6	12206.400	42.20	39.30	9.11	-39.96	50.65	74.00	23.35	PK	Horizontal
7	11490.700	/	/	/	/	22.58	54.00	31.42	AV	Horizontal

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-07-14 **Tested By:** Nan Zhong
EUT: Rear Surround Speaker **Model Number:** M510WR
Test Mode: TX SRD 5745MHz Mode **Power Supply:** AC 230V/50Hz
Condition: Temp:22.1°C;Humi:44.4% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2025 report date\Q25052319-2E\FCC ABOVE1G 5.8G\132
Memo: Sample Number:S25052319-001

**Suspected Data List**

NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	1588.200	47.02	25.41	3.45	-37.59	38.29	74.00	35.71	PK	Vertical
2	3900.200	47.00	31.20	5.28	-39.66	43.82	74.00	30.18	PK	Vertical
3	4146.700	45.75	31.19	5.48	-39.67	42.75	74.00	31.25	PK	Vertical
4	7568.800	44.67	36.44	7.59	-40.49	48.21	74.00	25.79	PK	Vertical
5	11490.700	53.09	39.21	8.71	-39.49	61.52	74.00	12.48	PK	Vertical
6	15650.600	40.03	38.55	10.08	-39.40	49.26	74.00	24.74	PK	Vertical
7	11490.700	/	/	/	/	19.32	54.00	34.68	AV	Vertical

Note:

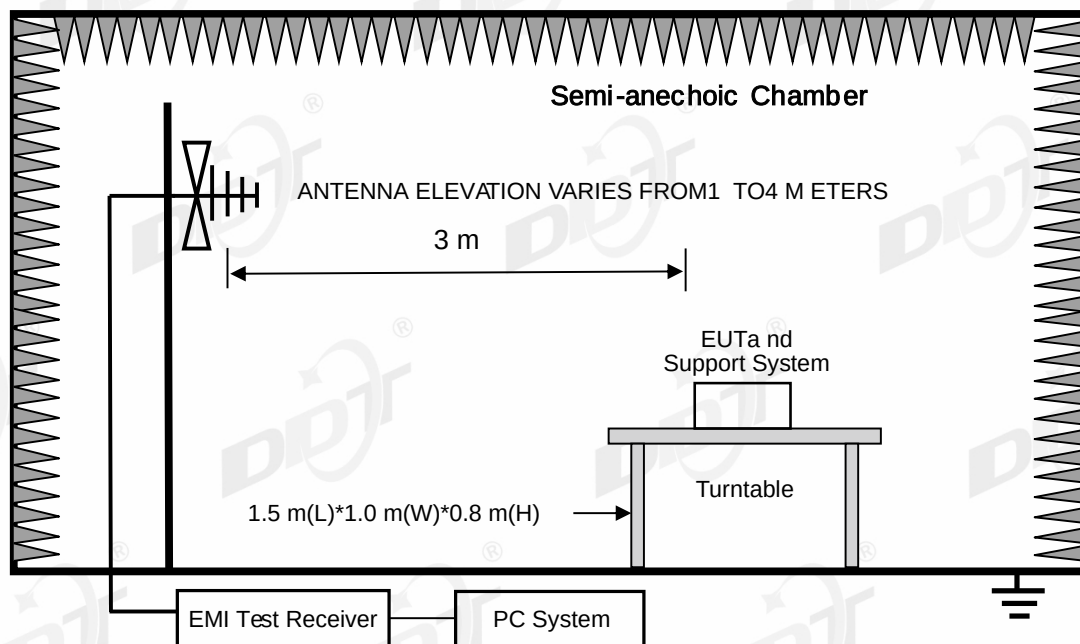
1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

8. Field Strength Of The Fundamental Signal

8.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal Due To
Micro-Tronics filters	REBES	BRM50702	DDT-ZC03242	/
RF Cable	N/A	W24.02 HL-562	DDT-ZC04022	2026/03/28
RF cable	Yuhu Technology	JCTB810-NJ-NJ-9M	DDT-ZC02538	2026/03/28
RF cable	Zhongke Junchuang	JCT26S-NJ-NJ-1.5M	DDT-ZC02762	2026/03/28
RF cable	Yuhu Technology	ZT26S-SMAJ-SMAJ-1M	DDT-ZC02037	2026/03/28
RF Cable	N/A	W13.02 AP1-X2	DDT-ZC04023	2026/03/28
Pre-amplifier	COM-POWER	PAM-840A	DDT-ZC01693	2026/03/28
Pre-amplifier	COM-POWER	PAM-118A	DDT-ZC01293	2025/08/25
High pass filter	Micro-Tronics	HPM50102	DDT-ZC00561	2026/03/28
EMI TEST RECEIVER	R&S	ESU26	DDT-ZC01909	2026/03/28
High pass filter	Micro-Tronics	HPM50108	DDT-ZC00560	2026/03/28
High Pass filter	Xi'an Xingbo	XBLBQ-GTA67	DDT-ZC02179	2026/03/28
Micro-Tronics filters	REBES	BRM50716	DDT-ZC03240	/
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	DDT-ZC00506	2027/04/01
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	DDT-ZC02050	2025/07/11
Hochgewinn-Hornantenne	SCHWARZBECK	BBHA 9120 D	DDT-ZC02129	2025/09/18
Active Loop Antenna	Schwarzbeck	FMZB1519	DDT-ZC00524	2025/09/11
PSA Series Spectrum Analyzer	Agilent	E4447A	DDT-ZC00517	2026/03/28

8.2. Block diagram of test setup



8.3. Limits

(3) FCC 15.249 limit

Fundamental Frequency (MHz)	Field Strength of Fundamental
5725-5875	AV: 94 dBuV/m @3m PK: 104 dBuV/m @3m

8.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

8.5. Test procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.

(2) Test antenna was located 3m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used	Test antenna distance
30MHz-1GHz	Trilog Broadband Antenna	3m

The Trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the

measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1m to 4m(Except loop antenna, it's fixed 1m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Change power supply range from 85% to 115% of the rated supply voltage

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

(4) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10 2013 on Radiated Emission test.

(5) The emissions from 9kHz to 1GHz were measured based on CISPR QP detector except for the frequency bands 9-90kHz, 110-490kHz, for emissions from 9kHz-90kHz,110kHz-490kHz and above 1GHz were measured based on average detector, for emissions above 1GHz, peak emissions also be measured and need comply with Peak limit.

(6) The emissions from 9kHz to 1GHz, QP or average values were measured with EMI receiver with below RBW.

Frequency band	RBW
30MHz-1GHz	120kHz

(7) X axis, Y axis, Z axis are tested, and worse setup X axis is reported.

8.6. Test result

Frequency (MHz)	PK Level (dBuV/m)	PK Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5745	96.54	114.00	-17.46	Horizontal
5745	93.19	114.00	-20.81	Vertical
5795	95.37	114.00	-18.63	Horizontal
5795	92.07	114.00	-21.93	Vertical
5848	95.28	114.00	-18.72	Horizontal
5848	92.23	114.00	-21.77	Vertical

Frequency (MHz)	AV Level (dBuV/m)	AV Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5745	54.34	94.00	-39.66	Horizontal
5745	50.99	94.00	-43.01	Vertical
5795	53.17	94.00	-40.83	Horizontal
5795	49.87	94.00	-44.13	Vertical
5848	53.12	94.00	-40.88	Horizontal
5848	50.07	94.00	-43.93	Vertical

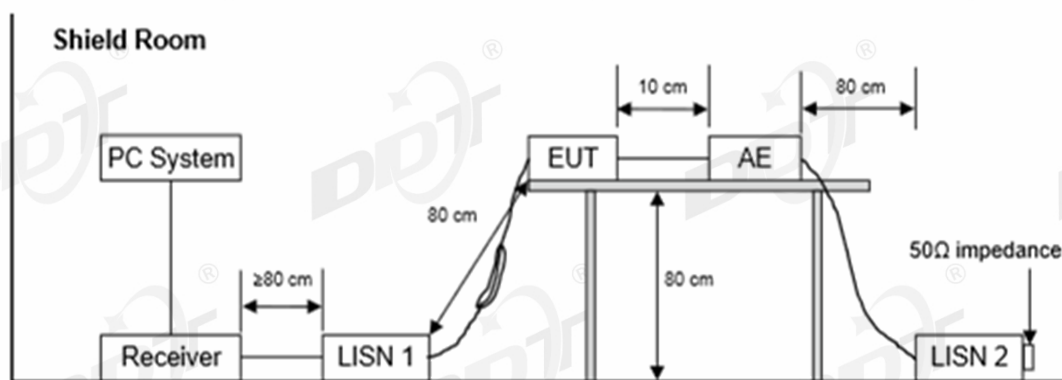
Note: AV Level = PK Level + Duty Cycle Factor

9. Power Line Conducted Emissions

9.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal Due To
EMI Test Receiver	R&S	ESCI 3	DDT-ZC01972	2026/03/28
Two Line V-Network	R&S	ENV216	DDT-ZC00586	2026/07/06
Pulse Limiter	R&S	KH43101	DDT-ZC00747	2026/03/28
Coaxial signal signal cable	H&S	RG214-5	DDT-ZC01817	2026/03/28
Conducted Radiated Software	Audix	E3	DDT-ZC00562	/
Two Line V-Network	R&S	ENV216	DDT-ZC02058	2026/07/06

9.2. Block diagram of test setup



9.3. Limits

Frequency	Quasi-Peak Level dB(uV)	Average Level dB(uV)
150 kHz~500 kHz	66 ~ 56*	56 ~ 46*
500 kHz~5 MHz	56	46
5 MHz~30 MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

9.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

9.5. Test procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

9.6. Test result

PASS. (See below detailed test result)

Note1: All emissions not reported below are too low against the prescribed limits.

Note2: “----” means Peak detection; “-----” means Average detection.

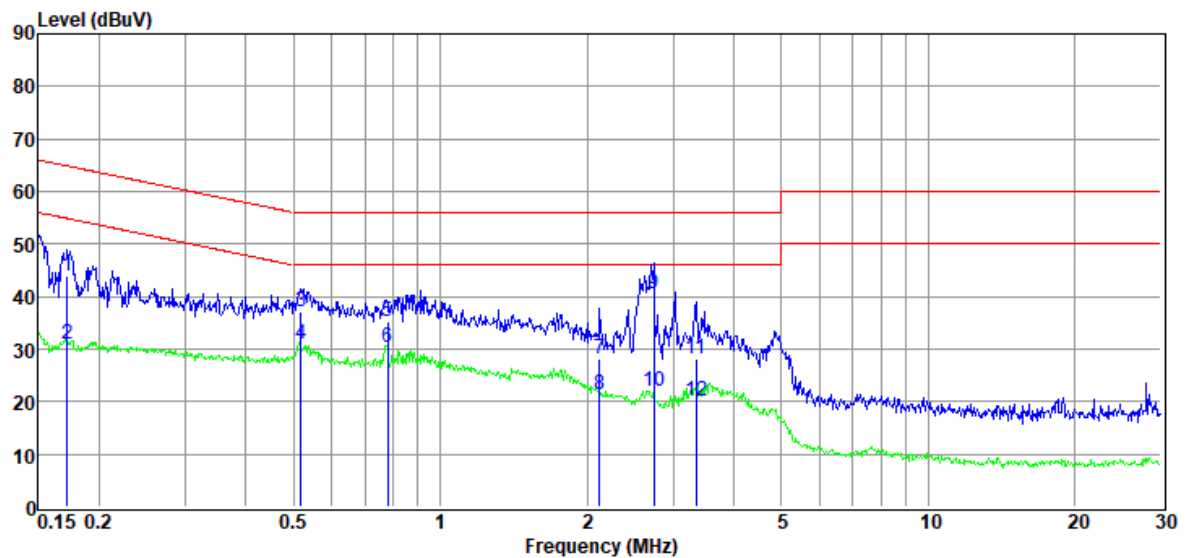
Note3: Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/50Hz, recorded the worst case.

9.7. Test data

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 5# Shield Room D:\2025 report data\Q25052319\0711 CE.EM6
Test Date : 2025-07-11 Tested By : Nan Zhong
EUT : Rear Surround Speaker Model Number : M510WR
Power Supply : AC 120V/60Hz Test Mode : TX SRD mode
Condition : Temp:22.6°C,Humi:66.7% LISN : 2023 ENV216 2#/LINE
Memo :

Data: 18



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.17	23.89	9.97	0.09	10.06	44.01	64.86	-20.85	QP	LINE
2	0.17	10.96	9.97	0.09	10.06	31.08	54.86	-23.78	Average	LINE
3	0.52	17.05	9.98	0.10	10.07	37.20	56.00	-18.80	QP	LINE
4	0.52	10.89	9.98	0.10	10.07	31.04	46.00	-14.96	Average	LINE
5	0.78	15.00	9.97	0.10	10.06	35.13	56.00	-20.87	QP	LINE
6	0.78	10.32	9.97	0.10	10.06	30.45	46.00	-15.55	Average	LINE
7	2.12	8.04	10.03	0.15	10.06	28.28	56.00	-27.72	QP	LINE
8	2.12	0.97	10.03	0.15	10.06	21.21	46.00	-24.79	Average	LINE
9	2.74	20.40	9.97	0.16	10.06	40.59	56.00	-15.41	QP	LINE
10	2.74	1.87	9.97	0.16	10.06	22.06	46.00	-23.94	Average	LINE
11	3.35	7.90	9.96	0.17	10.06	28.09	56.00	-27.91	QP	LINE
12	3.35	-0.21	9.96	0.17	10.06	19.98	46.00	-26.02	Average	LINE

Note: 1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 5# Shield Room

D:\2025 report data\Q25052319\0711 CE.EM6

Test Date : 2025-07-11

Tested By : Nan Zhong

EUT : Rear Surround Speaker

Model Number : M510WR

Power Supply : AC 120V/60Hz

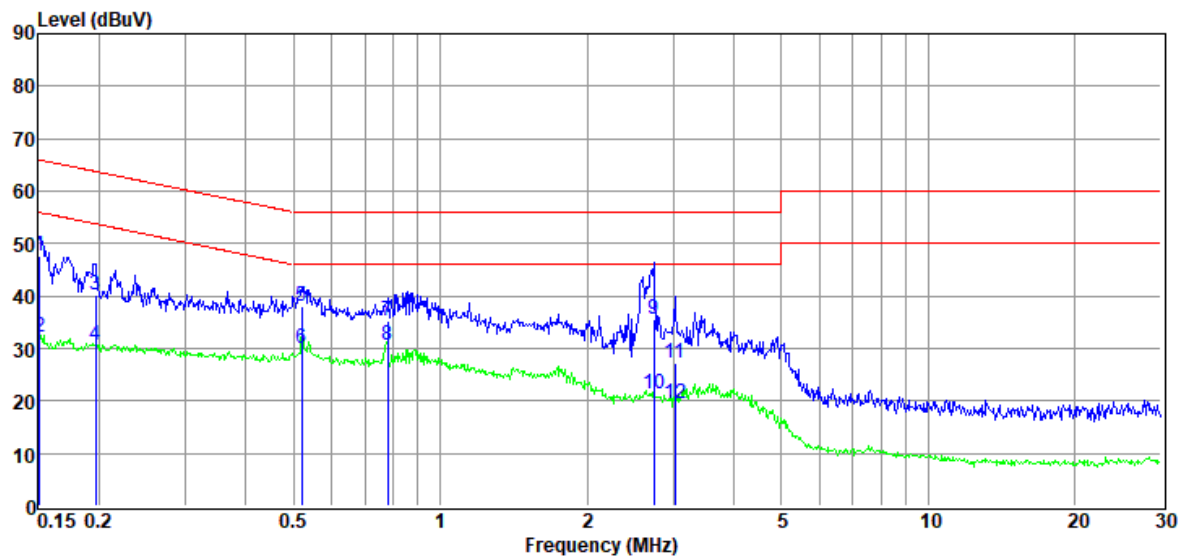
Test Mode : TX SRD mode

Condition : Temp:22.6°C,Humi:66.7%

LISN : 2023 ENV216 2##/NEUTRAL

Memo :

Data: 20



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.15	27.52	9.92	0.09	10.06	47.59	65.96	-18.37	QP	NEUTRAL
2	0.15	12.10	9.92	0.09	10.06	32.17	55.96	-23.79	Average	NEUTRAL
3	0.20	20.26	9.93	0.09	10.06	40.34	63.76	-23.42	QP	NEUTRAL
4	0.20	10.62	9.93	0.09	10.06	30.70	53.76	-23.06	Average	NEUTRAL
5	0.52	17.93	9.98	0.10	10.07	38.08	56.00	-17.92	QP	NEUTRAL
6	0.52	9.99	9.98	0.10	10.07	30.14	46.00	-15.86	Average	NEUTRAL
7	0.78	14.98	9.97	0.10	10.06	35.11	56.00	-20.89	QP	NEUTRAL
8	0.78	10.43	9.97	0.10	10.06	30.56	46.00	-15.44	Average	NEUTRAL
9	2.74	15.17	10.02	0.16	10.06	35.41	56.00	-20.59	QP	NEUTRAL
10	2.74	1.23	10.02	0.16	10.06	21.47	46.00	-24.53	Average	NEUTRAL
11	3.03	6.90	10.06	0.17	10.06	27.19	56.00	-28.81	QP	NEUTRAL
12	3.03	-0.92	10.06	0.17	10.06	19.37	46.00	-26.63	Average	NEUTRAL

Note: 1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).

4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

11. Photos of the EUT

Please refer to DDT-Q25052319-2E appendix I

-----End Report-----